

Customer No.: 31561
Docket No.: 11259-US-PA
Application No.: 10/604,822

REMARKS

This is a full and timely response to the outstanding Final Office Action mailed April 21, 2006 and Advisory Action mailed July 19, 2006. Reconsideration and allowance of the application and presently pending claims 5-13 as originally filed are respectfully requested.

Present Status of the Application

In the previous Office Action, claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asao et al. (US Patent 6,809,717, hereinafter "Asao") in view of Watanabe (JP 11-109317, hereinafter "Watanabe"). The Office Action also rejected claim 3 under 35 U.S.C. 103(a) as being unpatentable over Asao and Watanabe as applied to claim 1, and further in view of Kori et al. (Pub. No.: US 2004/0071363, hereinafter "Kori"). The Office Action further rejected claims 5, 6, and 8-11 under 35 U.S.C. 103(a) as being unpatentable over Asao in view of Watanabe and Lin (US Patent 6,674,914, hereinafter "Lin"). The Office Action still rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Asao, Lin and Watanabe as applied to claim 5, and further in view of Kori.

Applicant has cancelled claims 1-4, which renders the rejections addressed thereto moot. Applicant also adds new claims 12-13. After entry of the foregoing amendments, claims 5-13 remain pending in the present application. It is believed that no new matter is added by way of these amendments made to the claims or otherwise to the application.

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Applicant has most respectfully considered the remarks set forth in this Office Action. Regarding the obvious rejections, it is however strongly believed that the cited references of record are deficient to adequately teach the claimed features as recited in the presently pending claims. The reasons that motivate the above position of the Applicant are discussed in detail hereafter, upon which reconsideration of the claims is most earnestly solicited.

Discussion of Office Action Rejections

The Office Action further rejected claims 5, 6, and 8-11 under 35 U.S.C. 103(a) as being unpatentable over Asao in view of Watanabe and Lin. The Office Action still rejected claim 7 under 35 U.S.C. 103(a) as being unpatentable over Asao, Lin and Watanabe as applied to claim 5, and further in view of Kori.

Applicant hereby traverses the rejection and submits that the present invention as set forth in claim 5 is neither taught, disclosed, nor suggested by Asao in view of Watanabe and Lin, or any other cited references, taken alone or in combination.

With respect to claim 5, as originally filed, recites in part:

A driving method of a Liquid Crystal Display (LCD) ... comprising:

dividing a plurality of grayscale values 0, 1, 2, ..., N into a plurality of segments, where N is the highest grayscale of the image display system;
detecting a maximum grayscale X of all pixels in the present image;
adjusting output brightness of the back-light module to (Y / N) × L, where Y is upper limit of one of the segments in which the maximum grayscale X is

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located, L is a corresponding output brightness of the back-light module to the grayscale N....*(Emphasis Added)*

Applicant submits that the Examiner fails to establish a *prima facie* obviousness of the present invention as set forth in claim 1, because Asao in view of Watanabe and Lin, or any other cited references, taken alone or in combination, do not teach or suggest the claim limitation as "dividing a plurality of grayscale values 0, 1, 2, ..., N into a plurality of segments" and "adjusting output brightness of the back-light module to (Y / N) × L, where Y is upper limit of one of the segments in which the maximum grayscale X is located" that are required for the present method as set forth in claim 5 (emphasis added).

As admitted in the Office Action, the Asao fails to teach of "detecting a maximum grayscale X of all pixels in the present image; adjusting output brightness of the back-light module to (Y / N) × L, where Y is upper limit of one of the segments in which the maximum grayscale X is located, L is a corresponding output brightness of the back-light module to the grayscale N." The Office Action relied on the disclosure in the Solution of the Watanabe to remedy the deficiency of the Asao. More particularly, the Office Action indicated that it would have been obvious to "one of ordinary skill" in the art at the time the invention made to incorporate teaching of the Watanabe into Asao in order to maximize contrast and reduce power consumption.

It is respectfully submitted that the Examiner's interpretation of the cited reference is somewhat overreaching. Neither the Asao, nor the Watanabe disclose, teach or suggest "adjusting output brightness of the back-light module to (Y / N) × L, where Y is

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upper limit of one of the segments in which the maximum grayscale X is located.”

The “maximum level luminance 30% (30 IRE) from an input part 1” in the the Watanabe is not the “Y (upper limit of one of the segments in which the maximum grayscale X is located)” as claimed. By such segment arrangement in the claimed invention, the driving mechanism is simplified and a cost for the driving circuit can be effectively reduced. Each segment is configured to have a corresponding upper limit for adjusting the output brightness of the back-light module. The complexity of computation is reduced, thereby the number of the required components for such computation is reduced and the cost for the driving circuit can be effectively reduced.

As admitted in the Office Action, the Asao and the Watanabe fail to teach of “dividing a plurality of grayscale values 0, 1, 2, ..., N into a plurality of segments, where N is the highest grayscale of the image display system”, but relied on the Lin (Fig.2A, items k00-k20, location 3-5, Col.4, Lines 47-65) to remedy the deficiency of the Asao. Applicant respectfully submitted that the Lin does not teach or suggest “dividing a plurality of grayscale values 0, 1, 2, ..., N into a plurality of segments”, instead, the Lin teaches slicing the pixel into several pixels, as stated in the passage in Col.4, Lines 47-65, upon which the Office Action relied,

“each pixel in f1 will produce three pixels for each location in slice 10 when operated on by the three pixel structuring element segment k00. The resulting grayscale value of a pixel at each one of these locations will be the minimum value of the pixels generated at that location.” (Col.4, Lines 47-52)

Therefore, Applicant submits that the combination of Asao, Watanabe and Lin

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do not render the driving method of a Liquid Crystal Display as set forth in claim 5 obvious, and the present invention as set forth in claim 5 should be allowable.

If independent claim 1 is allowable over the prior art of record, then its dependent claims 6-11 are allowable as a matter of law, because these dependent claims contain all features of their respective independent claim 1. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

New Claims

New claims 12 and 13 are added for further defining the invention. In the claimed driving method of a liquid crystal display comprising a back-light module and a liquid crystal display panel, a plurality of grayscale values 0, 1, 2, ..., N is divided into a plurality of grayscale segments, where N is the highest grayscale of the image display system, thereby the brightness of the back-light module is also divided into a plurality of values corresponding to the grayscale segments respectively. Applicants submit that the new claims 22 and 23 are novel and patentable over all of the cited references, taken alone or in combination, and thus should be allowed.

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CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 5-13 are in proper condition for allowance and an action to such effect is earnestly solicited. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,

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